

REMARKS

In this Amendment, claims 1 and 2 have been amended. Claim 7 has been added. Support for the amendments can be found throughout the application as filed, e.g., at page 2, lines 15-20; page 14, lines 11-25; and page 25, lines 1-10. No new matter has been added.

The amendment of claims is without prejudice or disclaimer of the subject matter thereof and was done solely to expedite prosecution of the present application. Applicants reserve the right to pursue the original subject matter of this application in a later filed application claiming benefit of the instant application, including without prejudice to any determination of equivalents of the claimed subject matter.

The invention and the pending claims

The present invention, as defined by the pending claims, is directed to a biaxially oriented laminated polyester film. The claimed biaxially oriented laminated polyester film includes at least three polyester layers, including an intermediate layer containing a dye which is substantially dissolved in polyesters; the film has, on one side thereof, a resin layer containing metal-added metal oxide particles or metal oxide particles, and has on another side thereof a hard coat layer.

The claimed film thus includes an arrangement of at least the following constituent layers:

- a) hard coat layer;
- b) polyester layer;
- c) polyester layer containing dye;
- d) polyester layer;
- e) resin layer containing metal-added metal oxide particles or metal oxide particles.

Thus, the claimed film includes at least five constituent layers.

The present inventors have found that such a film is suitable for application to windows, as it is capable of preventing separation of dye on the film surface and preventing scratches when it is applied to window glass, and excels in heat insulation and aesthetic effect in use.

Rejection of claims under 35 USC §102(b)

Claims 1 - 6 stand rejected under 35 USC §102(b) as allegedly anticipated by Masuda, U.S. Patent Publication No. 2003/0016442 (hereinafter "Masuda '442"). This rejection is traversed.

As Applicants understand the reference, Masuda '442 discloses a laminated polyester film having several layers:

- a) hard coat layer containing tin oxide or ITO particles;
- b) polyester layer;
- c) polyester layer containing dye;
- d) polyester layer.

From the foregoing, it can be seen that only the hard coat layer of Masuda '442 contains tin oxide or ITO particles.

In contrast, in the laminated film of the presently-claimed invention, a resin layer containing metal-added metal oxide particles or metal oxide particles is separate from the hard coat layer; these two layers are independently present, disposed on opposed sides of the laminated film.

The arrangement of layers in the presently-claimed film results in superior performance. For example, both the laminated film of the present invention and the laminated film of Masuda '442 are intended for application to windows, commonly by sticking the film to the inner side of glass such as windows of automobiles and architectural structures such as buildings.

Thus, when applied to a glass surface on the inner side of a window, a film of the presently-claimed invention can be represented as follows:

=== hard coat layer
=== polyester layer
=== polyester layer containing dye
=== polyester layer
=== resin layer containing metal-added metal oxide particles
=== glass of window
↑↑↑ (Light incident toward window glass surface)

In contrast, the film of Masuda '442 can be represented as follows:

=== hard coat layer containing tin oxide or ITO particles
=== polyester layer
=== polyester layer containing dye
=== polyester layer
=== glass of window
↑↑↑ (Light incident toward window glass surface)

As seen above, in the film according to Masuda '442, outside light passing through the window will pass through the polyester layer containing dye before passing through the hard coat layer containing tin oxide or ITO particles.

In contrast, in a film according the presently-claimed invention, outside light passing through the window will pass through the resin layer containing metal-added metal oxide particles before passing through the polyester layer containing dye.

The resin layer containing metal-added metal oxide particles or metal oxide particles (according to the presently-claimed invention) and the hard coat layer containing tin oxide or ITO (according to Masuda '442) each serve to reduce UV (or IR) light passing through the layer. Usually, the polyester layer containing dye can be

deteriorated by exposure to UV (or IR) light. Therefore, the presently-claimed invention provides a structure in which the amount of UV (or IR) light is reduced (by passage through the resin layer containing metal-added metal oxide particles or metal oxide particles) before the light passes through the polyester layer containing dye. This arrangement provides an advantage over the film of Masuda '442, in which the amount of UV (or IR) light is not attenuated prior to passage through the polyester layer containing dye.

Furthermore, in a film according to Masuda '442, the hard coat layer must contain tin oxide or ITO particles in an amount effective to reduce UV (or IR) light passing therethrough. However, when sufficient light-reducing amounts of tin oxide or ITO particles are added to the hard coat layer, the surface of the hard coat layer may be deteriorated; this deterioration can be obvious, which reduces the value of the film product.

In contrast, in the presently-claimed film, the resin layer containing metal-added metal oxide particles or metal oxide particles is situated adjacent to the glass surface, rather than on a surface adjacent to the vehicle or building interior, so surface deterioration is less noticeable.

The presently-claimed film provides additional advantages over the film of Masuda '442, e.g., in manufacturing. For instance, according to some embodiments of the present invention, the hard coat layer may contain fewer or no particles of metal-added metal oxide or metal oxide. A hard coat layer which does not contain added particles can be more easily coated onto the other layers, resulting in a better surface appearance. Furthermore, UV curing of the hard coat layer is simplified, and better properties of the hard coat layer are generally obtained, when the hard coat layer does not contain added particles.

Similarly, when metal-added metal oxide particles or metal oxide particles are added to a coating solution containing a binder resin, the ability of the binder resin to adhere to another layer may be deteriorated. Also, resins used for hard coat layers

often have poor adhesiveness to other layers. Therefore, in a film as described in Masuda '442, the addition of tin oxide or ITO particles to the hard coat layer resin, in an effective light-reducing amount, can further impair the adhesiveness of the hard coat layer to the adjacent polyester layer.

In comparison, in certain embodiments of the film of the presently-claimed invention the resin constituting the resin layer containing metal-added metal oxide particles or metal oxide particles can be optionally selected in order to enhance adhesiveness to the adjacent polyester layer. Thus, in a film according to the presently-claimed invention, good adhesiveness between layers can be obtained.

Another advantage of the composition of the presently-claimed film is that coating layers are provided on each side of the central laminated polyester layers. In a film having a coating layer on only one side of the central laminated polyester layers (e.g., the arrangement of Masuda '442 in which a hard coat layer is provided on one side only of the central laminated polyester layers), application of the hard coat solution to only one side of the polyester film tends to cause curling of the film due to shrinkage of the hard coat layer during curing. However, when coating layers are provided on both sides of the polyester film, as in the presently-claimed film (e.g., a hard coating layer on one side and a resin layer containing metal-added metal oxide particles or metal oxide particles on the other side), it tends to reduce this curling.

It is well established that, for a reference to anticipate a claim, the reference must disclose each and every element of the claim. See, e.g., MPEP 3101. In the present case, Masuda '442 does not disclose a separate hard coat layer and resin layer containing metal-added metal oxide particles or metal oxide particles. Thus, Masuda '442 simply does not disclose each and every element of the presently-claimed invention. Therefore, Masuda '442 cannot and does not anticipate the presently-claimed invention (including new claim 7).

Reconsideration and withdrawal of the rejection is proper and such action is requested.

Rejection of claims under 35 USC §103(a)

Claims 1 - 6 stand rejected under 35 USC §103(a) as allegedly unpatentable over Masuda, U.S. Patent Publication No. 2002/0064650 (hereinafter "Masuda '650") in view of Oka, U.S. Patent No. 5,747,152 (hereinafter "Oka"). This rejection is traversed.

The Examiner has cited Masuda '650 as "disclos[ing] a biaxially oriented laminated polyester film comprising at least three polyester layers, wherein the intermediate layer contains a dye substantially dissolved in the polyester resin, [and] further coated with UV-curable hard coat." However, the Examiner concedes that Masuda '650 "does not explicitly disclose the use of the recited metal oxide particles."

The Examiner then states that Oka discloses the use of tin oxide or ITO particles in hard coat layers. The Examiner then states that "[i]t would have been obvious . . . to utilize known hard coat formulations containing metal oxide-based particles as disclosed in OKA ET AL as the hard coat layer in the films of MASUDA '650 in order to form an abrasion resistant antireflective film for glazing and display applications." Applicants do not agree with this position.

As will be appreciated from the discussion above, the presently-claimed invention is directed to a biaxially oriented laminated polyester film. The claimed biaxially oriented laminated polyester film includes at least three polyester layers, including an intermediate layer containing a dye which is substantially dissolved in polyesters; the film has, on one side thereof, a resin layer containing metal-added metal oxide particles or metal oxide particles, and has on another side thereof a hard coat layer.

Th us, in the presently-claimed film, the hard coat layer and the resin layer containing metal-added metal oxide particles or metal oxide particles are separate and are independently present, disposed on opposed sides of the laminated film.

Neither Masuda '650 nor Oka teaches or suggests such a film, in which a hard coat layer and a layer containing metal-added metal oxide particles or metal oxide particles are separate.

Moreover, there is no teaching or suggestion in Oka that would motivate one of skill in the art to modify the film taught in Masuda '650 so as to arrive at the presently-claimed invention. Oka simply cannot "bridge the gap" between the teachings of Masuda '650 and the presently-claimed invention.

In view of the lack of the requisite teaching or suggestion in the cited references, and the advantages of the presently-claimed film over previously-known films, Applicants respectfully contend that the present claims (including new claim 7) are patentable over all the cited references, whether those references are taken alone or in any combination.

Reconsideration and withdrawal of this rejection is proper and such action is requested.

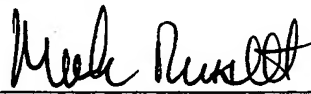
CONCLUSION

In view of the foregoing, Applicants believe the pending application is in condition for allowance. Early and favorable action is requested.

Applicants believe that no additional fee is required for consideration of this Response. However, the Director is hereby authorized to charge any deficiency in the fees filed, asserted to be filed or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Deposit Account No. 04-1105, under Order No. 63516 (71360).

Dated: November 30, 2006

Respectfully submitted,

By 

Mark D. Russett

Registration No.: 41,281
EDWARDS ANGELL PALMER & DODGE LLP
P.O. Box 55874
Boston, Massachusetts 02205
(617) 439-4444
Attorneys/Agents For Applicant